

International Geophysical Calendar 2002 (Final)

(See other side for information on use of this Calendar)

| | S | M | T | W | T | F | S | | S | M | T | W | T | F | S | |
|----------|-----------------|-----------------|-----|-----------------|-----------------|-----------------|-----------------|---|----------------|-----------------|-----|-----|-----------------|-----|-----------------|---|
| JANUARY | | | | 1 | 2 | 3 | 4 | 5 | | | 1 | 2 | 3 | 4 | 5 | 6 |
| | 6 | 7 | 8 | 9 | 10 | 11 | 12 | | 7 | 8 | 9* | 10* | 11* | 12 | 13 | |
| | 13 ^N | 14 | 15* | 16* | 17 | 18 | 19 | | 14 | 15 | 16 | 17 | 18 | 19 | 20 | |
| | 20 | 21 | 22 | 23 | 24 | 25 | 26 | | 21 | 22 | 23 | 24* | 25 | 26 | 27 | |
| | 27 | 28 ^F | 29 | 30 | 31 | 1 | 2 | | 28 | 29 | 30 | 31 | 1 | 2 | 3 | |
| FEBRUARY | 3 | 4 | 5 | 6 | 7 | 8 | 9 | | 4 | 5 | 6 | 7* | 8* | 9 | 10 | |
| | 10 | 11 | 12* | 13* | 14 | 15 | 16 | | 11 | 12 | 13* | 14* | 15 | 16 | 17 | |
| | 17 | 18 | 19 | 20 | 21 | 22 | 23 | | 18 | 19 | 20 | 21 | 22 ^F | 23 | 24 | |
| | 24 | 25 | 26 | 27 ^F | 28 | 1 | 2 | | 25 | 26 | 27 | 28 | 29 | 30 | 31 | |
| MARCH | 3 | 4 | 5 | 6 | 7 | 8 | 9 | | 1 | 2 | 3 | 4* | 5* | 6 | 7 ^N | |
| | 10 | 11+ | 12+ | 13* | 14* | 15+ | 16 | | 8 | 9 | 10 | 11 | 12 | 13 | 14 | |
| | 17 | 18 | 19 | 20 | 21 | 22 | 23 | | 15 | 16 | 17 | 18 | 19 | 20 | 21 ^F | |
| | 24 | 25 | 26 | 27 | 28 ^F | 29 | 30 | | 22 | 23 | 24 | 25 | 26 | 27 | 28 | |
| | 31 | 1 | 2 | 3 | 4 | 5 | 6 | | 29 | 30 | 1 | 2 | 3 | 4 | 5+ | |
| APRIL | 7 | 8 | 9+ | 10+ | 11+ | 12 ^N | 13 | | 6 ^N | 7+ | 8* | 9* | 10+ | 11+ | 12 | |
| | 14 | 15 | 16* | 17* | 18 | 19 | 20 | | 13 | 14 | 15 | 16 | 17 | 18 | 19 | |
| | 21 | 22 | 23 | 24 | 25 | 26 | 27 ^F | | 20 | 21 ^F | 22 | 23 | 24 | 25 | 26 | |
| | 28 | 29 | 30 | 1 | 2 | 3 | 4 | | 27 | 28 | 29 | 30 | 31 | 1 | 2 | |
| MAY | 5 | 6 | 7 | 8 | 9 | 10 | 11 | | 3 | 4 ^N | 5* | 6* | 7 | 8 | 9 | |
| | 12 ^N | 13 | 14* | 15* | 16 | 17 | 18 | | 10 | 11+ | 12+ | 13* | 14+ | 15+ | 16 | |
| | 19 | 20 | 21 | 22 | 23 | 24 | 25 | | 17 | 18 | 19 | 20 | 21 | 22 | 23 | |
| | 26 ^F | 27 | 28 | 29 | 30 | 31 | 1 | | 24 | 25 | 26 | 27 | 28 | 29 | 30 | |
| JUNE | 2 | 3 | 4 | 5 | 6 | 7 | 8 | | 1 | 2 | 3+ | 4* | 5* | 6 | 7 | |
| | 9 | 10* | 11* | 12* | 13 | 14 | 15 | | 8 | 9 | 10 | 11 | 12 | 13 | 14 | |
| | 16 | 17 | 18 | 19 | 20 | 21 | 22 | | 15 | 16 | 17 | 18 | 19 | 20 | 21 | |
| | 23 | 24 ^F | 25 | 26 | 27 | 28 | 29 | | 22 | 23 | 24 | 25 | 26 | 27 | 28 | |
| | 30 | | | | | | | | 29 | 30 | 31 | 1* | 2* | 3 | 4 | |
| | S | M | T | W | T | F | S | | 5 | 6 | 7 | 8 | 9 | 10 | 11 | |
| | | | | | | | | | 12 | 13 | 14 | 15 | 16 | 17 | 18 ^F | |
| | | | | | | | | | 19 | 20 | 21 | 22 | 23 | 24 | 25 | |
| | | | | | | | | | 26 | 27 | 28 | 29 | 30 | 31 | | |
| | | | | | | | | | S | M | T | W | T | F | S | |

15 Regular World Day (RWD)

13 Priority Regular World Day (PRWD)

16 Quarterly World Day (QWD)
also a PRWD and RWD

2 Regular Geophysical Day (RGD)

7 8 World Geophysical Interval (WGI)

N NEW MOON F FULL MOON

4 Day of Solar Eclipse: Jun 10-11 and Dec 4

10 11 Airglow and Aurora Period

11 + Incoherent Scatter Coordinated Observation Day 15* Dark Moon Geophysical Day (DMGD)

NOTES on other dates and programs of interest:

- Days with significant meteor shower activity are: Northern Hemisphere 3 Jan; 21-23 Apr; 4-6 May; 6-11, 27-29 Jun; 12-14 Aug; 21-23 Oct; 18-19 Nov; 13-15, 21-23 Dec 2002; 3-4 Jan 2003. Southern Hemisphere 4-6 May; 6-11, 27-29 Jun; 27 Jul-2 Aug; 21-23 Oct; 18-19 Nov; 13-15 Dec 2002. These can be studied for their own geophysical effects or may be "geophysical noise" to other experiments.
- GAW (Global Atmosphere Watch) -- early warning system for changes in greenhouse gases, ozone layer, and long range transport of pollutants. (See Explanations.)
- ISCS (International Solar Cycle Studies) -- SCOSTEP Project. Observing Program 1998-2002: Study of processes associated with the maximum phase of the solar cycle. (See Explanations.)
- S-RAMP -- SCOSTEP Project. Solar Terrestrial Energy Program (S) - Results, Applications, and Modeling Phase (RAMP). (See Explanations.)
- + Incoherent Scatter Coordinated Observations Days (see Explanations) starting at 1300 UT on the first day of the intervals indicated, and ending at 1600 UT on the last day of the intervals: 4-29 Mar SELT month long alert (11-15 Mar default); 2-17 Apr CSPP two week alert (9-12 Apr default); 11-12 Jun Database; 13-14 Aug Database; 5-7 Oct POLITE; 1-29 Oct SELT month long alert (7-11 Oct default); 11-15 Nov LTCS; 3-5 Dec Millennium Polar Max -- see http://www.eiscat.uit.no/URSI_ISWG/2002_schedule.html.

where CSPP = Coordinated Storm Study Period (John Foster - jcf@haystack.mit.edu);

Database= Emphasis on broad latitudinal coverage of the F region (Tony van Eyken -- Tony.van.Eyken@eiscat.com);

LTCS = Lower Thermosphere Coupling Study (C. Fessen - fessen@tides.utdallas.edu);

Millennium Polar Max = Santimay Basu (santimay@aol.com) and Cesar Valladares (cesar@dl5000.bc.edu);

POLITE=Plasmaspheric Observations of Light Ions in the Topside Exosphere (P. Erickson -- pje@haystack.mit.edu);

SELT = Storm Effects in the Lower Thermosphere (Joe Salah -- jsalah@haystack.mit.edu).

EXPLANATIONS

This Calendar continues the series begun for the IGY years 1957-58, and is issued annually to recommend dates for solar and geophysical observations which cannot be carried out continuously. Thus, the amount of observational data in existence tends to be larger on Calendar days. The recommendations on data reduction and especially the flow of data to **World Data Centers (WDCs)** in many instances emphasize Calendar days. The Calendar is prepared by the **International Space Environment Service (ISES)** with the advice of spokesmen for the various scientific disciplines.

The **Solar Eclipses** are:

a.) **10-11 June 2002 (annular) eclipse** with annularity visible only over the Pacific Ocean, passing about 50 km S of Baja California, Mexico, near its end before sunset and touching Mexico west of Guadalajara at sunset; partial phases visible in E. Asia, Japan, Indonesia, N Australia, Pacific Ocean, NW Mexico, W U.S.A. (60%-80% in CA), and W Canada. Annularity has 0.996 eclipse magnitude, with duration only 23 s in a narrow, 13 km path width. See <http://sunearth.gsfc.nasa.gov/eclipse/SEplot/SEplot2001/SE2002Jun10A.gif>

b.) **4 December 2002 (total) eclipse** with totality visible only in Angola, NE Botswana, SW Zimbabwe, the NE border region of South Africa near Zimbabwe, and S Madagascar and, near sunset, low in the sky in S central Australia about 800 km W of Adelaide. A partial eclipse is visible in Africa except the north, SE Atlantic Ocean, central Indian Ocean, much of Antarctica, E Indonesia, East Timor, and W Australia. Maximum duration is 2 min 4 s in an 87 km path width, though accessible durations are 1 min in Angola, 1 1/2 min in Mozambique, and about 30 s in Australia.

(Description by Dr. Jay Pasachoff, Williams College, Chair of IAU WG on Solar Eclipses, jmp@williams.edu with input from Fred Espenak, NASA GSFC. See <http://sunearth.gsfc.nasa.gov/eclipse/SEcat/SEdecade2001.html> and www.williams.edu/Astronomy/IAU_eclipses.)

Meteor Showers (selected by R. Hawkes, Mount Allison Univ, Canada (rhawkes@mta.ca)) include important visual showers and also unusual showers observable mainly by radio and radar techniques. The dates are given in Note 1 under the Calendar.

Definitions:

- Time = Universal Time (UT);
- Regular Geophysical Days (RGD) = each Wednesday;
- Regular World Days (RWD) = Tuesday, Wednesday and Thursday near the middle of the month (see calendar);
- Priority Regular World Days (PRWD) = the Wednesday RWD;
- Quarterly World Days (QWD) = PRWD in the WGI;
- World Geophysical Intervals (WGI) = 14 consecutive days each season (see calendar);
- ALERTS** = occurrence of unusual solar or geophysical conditions, broadcast once daily soon after 0400 UT;
- STRATWARM** = stratospheric warmings;
- Retrospective World Intervals (RWI) = MONSEE study intervals

For more detailed explanations of the definitions, please see one of the following or contact H. Coffey (address below): *Solar-Geophysical Data*, October issue; *URSI Information Bulletin*; *COSPAR Information Bulletin*; *IGA News*; *IUGG Chronicle*; *WMO Bulletin*; *IAU Information Bulletin*; *Geomagnetism and Aeronomy (Russia)*; *Journal of Atmospheric and Terrestrial Physics (UK)*; *ISES homepage* <http://ises-spaceweather.org/>.

Priority recommended programs for measurements not

The **International Space Environment Service (ISES)** is a permanent scientific service of the International Union of Radio Science (URSI), with the participation of the International Astronomical Union (IAU) and the International Union of Geodesy and Geophysics (IUGG). ISES adheres to the Federation of Astronomical and Geophysical Data Analysis Services (FAGS) of the International Council for Science (ICSU). The ISES coordinates the international aspects of the world days program and rapid data interchange.

This Calendar for 2002 has been drawn up by H.E. Coffey, of the ISES Steering Committee, in association with spokesmen for the various scientific disciplines in SCOSTEP, IAGA, URSI and other ICSU organizations. Similar Calendars are issued annually beginning with the IGY, 1957-58, and are published in various widely available scientific publications.

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Additional copies are available upon request to ISES Chairman, Dr. Katsuhide Marubashi, Space Science Division, Communications Research Laboratory, 4-2-1 Nukui-kita, Koganei-shi, Tokyo 184-8795, Japan, Fax number +81-42-327-6677, e-mail kmuru@erl.go.jp or ISES Secretary for World Days, Miss Helen Coffey, WDC-A for Solar-Terrestrial Physics, NOAA E/GC2, 325 Broadway, Boulder, Colorado 80303, USA, Fax number (303)497-6513, e-mail Helen.E.Coffey@noaa.gov.

The calendar is available on-line at <http://ises-spaceweather.org/>.

made continuously (in addition to unusual **ALERT** periods):

Aurora and Airglow — Observation periods are New Moon periods, especially the 7 day intervals on the calendar;

Atmospheric Electricity — Observation periods are the RGD each Wednesday, beginning on 2 January 2002 at 0000 UT, 9 January at 0600 UT, 16 January at 1200 UT, 23 January at 1800 UT, etc. Minimum program is **PRWDs**.

Geomagnetic Phenomena — At the minimum, need observation periods and data reduction on **RWDs** and during **MAGSTORM Alerts**.

Ionospheric Phenomena — Quarter-hourly ionograms; more frequently on **RWDs**, particularly at high latitude sites; f-plots on **RWDs**; hourly ionogram scaled parameters to **WDCs** on **QWDs**; continuous observations for solar eclipse in the eclipse zone. See **Airglow and Aurora**.

Incoherent Scatter — Observations on Incoherent Scatter Coordinated Days; also intensive series on **WGIs** or **Airglow and Aurora** periods. **Special programs:** Dr. A. P. van Eyken, EISCAT Scientific Assoc., Ramfjordmoen, N-9027 Ramfjordbotn, Norway, URSI Working Group G.5; tel. +47 77692166; Fax +47 77692380; e-mail tony@eiscat.no. See http://www.eiscat.uit.no/URSI_ISWG.

Ionospheric Drifts — During weeks with **RWDs**.

Travelling Ionosphere Disturbances — special periods, probably **PRWD** or **RWDs**.

Ionospheric Absorption — Half-hourly on **RWDs**; continuous on solar eclipse days for stations in eclipse zone and conjugate area. Daily measurements during Absorption Winter Anomaly at temperate latitude stations (Oct-Mar Northern Hemisphere; Apr-Sep Southern Hemisphere).

Backscatter and Forward Scatter — **RWDs** at least.

Mesospheric D region electron densities — RGD around noon.

ELF Noise Measurements of earth-ionosphere cavity resonances — **WGIs**.

All Programs — Appropriate intensive observations during unusual meteor activity.

Meteorology — Especially on **RGDs**. On **WGIs** and **STRATWARM** Alert Intervals, please monitor on Mondays and Fridays as well as Wednesdays.

GAW (Global Atmosphere Watch) -- WMO program to integrate monitoring of atmospheric composition. Early warning system of changes in atmospheric concentrations of greenhouse gases, ozone, and pollutants (acid rain and dust particles). WMO, 41 avenue Giuseppe-Motta, P.O. Box 2300, 1211 Geneva 2, Switzerland.

Solar Phenomena — Solar eclipse days, **RWDs**, and during **PROTON/FLARE ALERTS**.

ISCS (International Solar Cycle Studies) -- SCOSTEP Project. 1998-2002 observations and analyses of underlying and resulting processes associated with the rising and maximum phase of the solar cycle. Contacts: S.T. Wu, Univ of Alabama, Huntsville Dept Mech Eng & Ctr for Space Plasma & Aeron Res, Huntsville, AL 35899 USA (205)895-6413, Fax (205)895-6328, wu@cspasr.uah.edu, V. Obridko, IZMIRAN, Solar Physics Dept, 142092 Troitsk, Moscow, Russia. 095-334-0926; Fax 095-334-0124, obridko@lars.izmiran.troitsk.ru.

S-RAMP -- Global coordinated ground-based and space-borne observations of space weather phenomena covering the entire space weather chain from the surface of the Sun to the effects on the near-Earth space and ground-based technological systems. Contacts: Dr. David Boteler (boteler@geolab.nrcan.gc.ca) and Dr. Phil Wilkinson (phil@ips.gov.au). See www.ngdc.noaa.gov/stp/SRAMP/sramp.html.

Space Research, Interplanetary Phenomena, Cosmic Rays, Aeronomy — **QWDs**, **RWD**, and **Airglow & Aurora** periods.